UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 May 2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,15,17-20,24,26,27,31-33,37,39-43,51 and 53-56* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,15,17-20,24,26,27,31-33,37,39-43,51 and 53-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendments

1.   In response to the Office Action mailed February 27 2007, applicant submitted an

amendment filed on May 29, 2007, in which the applicant amended and requested

reconsideration.

Response to Arguments

2.   Applicant argues that Wolf does not disclose calculating a second score of each

of the K-best paths for the frame. Applicant further argues that Wolf teaches away of

calculating the second score after a first score has been computed because calculating

the confidence score is only an alternative option. In other words, Wolf does not

compute both the first score and the second score but only one of them. However,

although calculating the confidence score can be an option, it does not mean that it

cannot be done. Besides, Wolf teaches that any word can have a combination of

confidence, i.e. more than one (column 3, paragraph 0040). Also, a prior art reference

that "teaches away" from the claimed invention is a significant factor to be considered in

determining obviousness; however, "the nature of the teaching is highly relevant and

must be weighted in substance. A known or obvious composition does not become

patentable simply because it has been described as somewhat inferior to some other

product for the same use." In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132

(Fed. Cir. 1994). Furthermore, "the prior art's mere disclosure of more than one

alternative does not constitute a teaching away from any of these alternatives because

such disclosure does not criticize, discredit, or otherwise discourage the solution

claimed..." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Arguments that alleged anticipatory prior art teaches away from the invention is not

germane to a rejection under section 102. A reference is no less anticipatory if, after

disclosing the invention, the reference then disparages it. The question whether a

reference teaches away from the invention is inapplicable to an anticipation analysis.

Therefore, Applicant's arguments are not persuasive.

Applicant also argues that Wolf does not disclose the client and server aspect.

However, Wolf teaches that the phoneme lattice can be used for device, e.g. cellular

telephones and hand-held digital devices. The recognizer is part if the input device, cell

phone, and the lattices can be forwarded to the search engine (column 4, paragraph

0055. In this example, the cell phone is the client and the search engine is the server.

Therefore, Applicants arguments are not persuasive.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

4.   **Claim 1, 3-4, 7, 15, 17-20, 24, 26-27, 31-33, 37, 39-40, 43, 51 and 53-56** are

rejected under 35 U.S.C. 102(e) as being anticipated by Wolf et al. (PGPUB

2003/0204399), hereinafter referenced as Wolf.

Regarding **claims 1 and 37**, Wolf discloses a method, system and article,

hereinafter referenced as a method for processing a speech signal, comprising:

receiving an input speech signal (spoken queries; column 1, paragraph 0013);

constructing a phoneme lattice for the input speech signal (lattice; column 2,

paragraph 0020 with column 4, paragraph 0055);

searching the phoneme lattice to produce a likelihood score for each potential

path (likelihood of paths; column 3, paragraph 0038);

determining a processing result for the input speech signal based on the

likelihood score of each potential path (likelihood scores of path; column 3, paragraphs

0033-0040);

segmenting an input speech signal into frames (word-level lattices; column 2,

paragraph 0020 with column 3, paragraphs 0033-0040);

extracting acoustic features for a frame of the input speech signal (acoustic

information; column 2, paragraphs 0022-0023 with column 1, paragraph 0013);

determining K-best initial phoneme paths leading to the frame based on a first

score of each potential phoneme path leading to the frame (best scoring path; column 3,

paragraphs 0033-0040); and

calculating a second score for each of the K-best phoneme paths for the frame

(confidence scores; column 2, paragraph 0021 with column 3, paragraphs 0033-0040).

Regarding **claims 3, 17, 39 and 53**, Wolf discloses a method further comprising:

clustering together K-best initial phoneme paths for at least one consecutive

frame (single best scoring path; column 3, paragraphs 0033-0040);

selecting M-best refined phoneme paths among the clustered phoneme paths

based on second scores of these paths (best scoring path; column 3, paragraphs 0033-

0040); and

identifying vertices and arc parameters of the phoneme lattice for the input

speech signal (inherent in figures 3a and 3b with column 3, paragraphs 0033-0040).

Regarding **claims 4, 18, 26, 40 and 54**, Wolf discloses a method wherein the

first score and the second score comprise a score based on phoneme acoustic models

and language models (model; column 2, paragraph 0024 with column 4, paragraphs

0051-0055).

Regarding **claims 7 and 43**, Wolf discloses a method wherein determining the

processing result comprises determining at least one of the following: at least one

candidate textual representation of the input speech signal and a likelihood that the

input speech signal contains targeted keywords (text transcript; column 1, paragraph

0006).

Regarding **claims 15, 31-33 and 51**, Wolf discloses a method for distributing

speech processing, comprising:

receiving an input speech signal by a client (spoken query; column 3, paragraphs 0033-0040);

constructing a phoneme lattice for the input speech signal by the client (lattice; column 3, paragraphs 0033-0040 with column 4, paragraph 0040);

transmitting the phoneme lattice from the client to a server (column 3, paragraphs 0033-0040 with column 4, paragraph 0040); and

searching the phoneme lattice to produce a result for the input speech signal for the purpose of at least one of recognizing speech and spotting keywords, in the input speech signal (speech recognition; column 3, paragraphs 0033-0040 with column 4, paragraph 0040).

Regarding **claims 19 and 55**, they are interpreted and rejected for the same reasons as set forth in claim 5. In addition, Wolf discloses a method wherein searching the phoneme lattice comprises:

determining a search result for the input audio signal based on the modified score of each searched path (dividing the scores; column 3, paragraphs 0033-0040).

Regarding **claims 20 and 56**, Wolf discloses a method wherein modifying the score comprises adjusting the score by at least one of the following: allowing repetition of phonemes and allowing flexible endpoints for phonemes in a path (expanded to their most frequent; column 4, paragraphs 0047-0049).

Regarding **claims 24**, it is interpreted and rejected for the same reason as set forth in claim 15. In addition, Wolf discloses a speech processing system comprising:

a plurality of models for lattice construction (column 3, paragraphs 0033-0040

and column 4, paragraph 0055); and

a plurality of models for lattice search (column 3, paragraphs 0033-0040 and

column 4, paragraph 0055).

Regarding **claim 27**, it is interpreted and rejected for the same reasons as set

forth in the combination of claims 21 and 24.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 5-6 and 41-42** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Wolf in view of Van Thong.

Regarding **claims 5 and 41**, Wolf discloses a method wherein searching the

phoneme lattice comprises:

receiving a phoneme lattice (column 4, paragraph 0055);

traversing the phoneme lattice via potential paths (column 3, paragraphs 0033-

0040); and

modifying the score for the traversed path (column 3, paragraphs 0033-0040),
but does not specifically teach computing a score for a traversed path based on at least
one of a phoneme confusion matrix and a plurality of language models.

Van Thong teaches a method comprising teach computing a score for a
traversed path based on at least one of a phoneme confusion matrix (column 7, lines
33-62) and a plurality of language models (column 1, lines 29-36), to compute the N-
best lists.

Therefore, it would have been obvious to one of ordinary skill in the art at the
time the invention was made to modify Wolf's method wherein it comprises computing a
score for a traversed path based on at least one of a phoneme confusion matrix and a
plurality of language models, as taught by Van Thong, to store the likelihood of
confusion pairs of phonemes (column 7, lines 33-62) and to obtain the N-best lists
(column 1, lines 29-36),

Regarding **claims 6 and 42**, Wolf discloses a method wherein modifying the
score comprises adjusting the score by at least one of the following: allowing repetition
of phonemes and allowing flexible endpoints for phonemes in a path (expanded to their
most frequent; column 4, paragraphs 0047-0049).

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

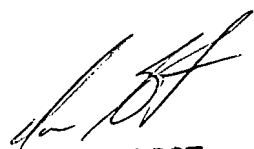than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jakieda R. Jackson whose telephone number is 571-

272-7619. The examiner can normally be reached on Monday-Friday from 5:30am-

2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRJ
August 6, 2007

DWAYNE BOST
SUPERVISORY PATENT EXAMINER